Evidence-Based Pilot Project Proposal: Improving Glycemic Control for Ethnic Minority Patients with Type 2 Diabetes

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Introduction

Diabetes is the seventh leading cause of death in the United States; the leading cause of kidney failure, nontraumatic lower-limb amputations, and new cases of blindness among adults in the United States; and a major cause of heart disease and stroke (National Diabetes Information Clearinghouse, 2011). The majority of patients who have type 2 diabetes mellitus (T2DM) also have hypertension and dyslipidemia, and also have 2 to 5 times the risk of cardiovascular disease. Seventy-five percent of patients with T2DM will die of diabetes-related cardiovascular disease.

As devastating as these statistics are, disparities exist among minority populations in the United States. African-Americans are included in this group and are disproportionately affected by diabetes. According to the American Diabetes Association (ADA), compared to the general population, racial minorities have a higher incidence of diabetes and are less able to obtain the care they need to manage this condition. There are 3.7 million or 14.7 percent of all African-Americans aged 20 years or older with diabetes. Many people aren’t even aware that they have the disease until well-involved in one or more diabetic complications, thus diminishing quality of life on all levels:

- **Blindness.** African-Americans are 50 percent more likely to develop diabetic retinopathy as non-Hispanic whites (ADA, 2011).
- **Kidney Disease.** African-Americans are 2.6 to 5.6 times as likely to develop kidney disease with more than 4,000 new cases of ESRD yearly (ADA, 2011).
- **Amputations.** 27 times as likely to suffer from lower limb amputations at a rate 1.4 to 2.7 times higher in men than women (ADA, 2011).
• **Heart Disease and Stroke.** Sadly, this accounts for about 65 percent of deaths in African-Americans (ADA, 2011).

• **Nerve Damage.** African-Americans have higher incidences of diabetic neuropathy, which increases the risk for amputations (ADA, 2011).

The Balanced Budget Act of 1997 sanctioned demonstration projects to test coordinated care programs, including disease management, to determine their effectiveness in promoting quality of care, improving outcomes, and reducing avoidable hospital admissions for Medicare beneficiaries with chronic diseases (CMS, 2003). Diabetes is one of these chronic diseases that are unfortunately, a health disparity in the United States that can be identified along many lines including racial, ethnic, income, and educational lines (Kosoko-Lasaki, Cook, & O’Brien, 2009). African-Americans bear a disproportionate burden of the disease, its complications, and its costs.

The primary purpose of diabetes education is to provide knowledge and skill training, help individuals identify barriers, and facilitate problem solving and coping skills to achieve effective self-care behavior change. Reducing avoidable risk factors through effective education can markedly reduce diabetes-related complications. Diabetes education has long been held to be the cornerstone of effective diabetes care. The American Association of Diabetes Educators (AADE) mandates Standards for Outcomes Measurement of Diabetes Self-Management Education (DSME) that measure the effectiveness of diabetes interventions. Outcomes measurement for diabetes education has primarily focused program evaluations on the structure and process of services delivered. Lack of definitive outcomes specific to diabetes education has led to the use of the metabolic measure HbA1c as a determinant of success for diabetes programs. Traditional approaches have not been effective with the African-American population. In 2006 the American Association of Diabetes Educators and the American Diabetes
Association jointly issued a revision of the DSME standards. Revision three stated that “there is no one best education program or approach; however, programs incorporating behavioral and psychosocial strategies demonstrate improved outcomes. Additional studies show that culturally and age-appropriate programs improve outcomes and that group education is effective” (Funnell et al., 2008).

The African-American and Latino populations experience a 50 to 100% higher burden of illness and mortality because of diabetes compared to the white population (Two Feathers, Kieffer, Palmisano, Anderson, Sinco, Janz, & James, 2005). The prevalence of blindness related diabetes is twice as high in African-Americans as White Americans, kidney disease is 4 times higher, and amputations occur at a much higher rate. The cost for successful treatment of diabetes is staggering; the cost of missed treatments is overwhelming. Many diabetic trials have shown that unwavering control of blood glucose will significantly reduce complications related to diabetes; dietary and lifestyle changes are the standard tactics for controlling blood glucose in patients with type 2 diabetes. Despite the clearly delineated lines of disparity, African-Americans are not responsive to traditional diabetic teachings and may have shunned these customary approaches due to the failure of educators to account for and include cultural and spiritual beliefs, food preferences, dialect, and customs in the interventions. Many African-Americans identify a lack of support and respect from medical professionals which promotes distrust and prevents a shared bond of working toward established goals (Polzer, 2007).

Good diabetes education and management including glycemic control can seriously lessen the impact of diabetes complications or prevent new occurrences. Healthcare teams across the United States must be willing to assume the responsibility of care for this disadvantaged population, and equip them with the tools necessary to fight this dreaded disease for themselves.
as well as the future generations. Multiple landmark studies have been conducted such as the Diabetes Control and Complications Trial (DCCT) (DCCT Research Group, 1990) for patients with T1DM and the United Kingdom Prospective Diabetes Study (UKPDS) (Clarke, 2004) for patients with T2DM which clearly demonstrate that intensive glycemic control postpones, prevents, or slows progression of retinal, renal, and neurologic complications. In addition to pharmacologic treatment of this devastating disease, physicians, advanced nurses, and legislators must continually seek to promote heightened awareness of the seriousness of diabetes, and encourage new interventions and standards of care for current and future treatment of diabetes, with the goal of complete eradication of diabetes mellitus.

**Purpose**

The purpose of this project then, is to identify culturally specific educational methods that can be utilized and translated into clinical practice for use by advanced practice nurses to improve the outcomes for African-American diabetic patients by increasing awareness of diabetes, diabetic complications, self-care management and glycemic control. The fact that African-Americans are disproportionately affected by diabetes implies that education is of utmost importance in involving this community in taking responsibility for those aspects of self-care that are required for optimal outcomes. How best to achieve this goal as it relates to patients with type 2 diabetes is the focus of this project. All interventions and recommendations will center on answering the burning PICO question:

**In ethnic minority patients with type 2 diabetes, will individualized culturally appropriate education compared to routine education improve diabetes management as measured by the HbA1c?**

**P (Population)**  =  In ethnic minority patients with type 2 diabetes
I (Interest) = will individualized culturally appropriate education
C (Comparison) = compared to routine education
O (Outcome) = improve diabetes management as measured by the HbA1c?

**Framework**

Evidence-based practice “is the integration of current, scientifically-based research data into clinical practice to communicate and implement best-practice interventions, and to change practices when needed based on research evidence. There is increasing recognition that efforts to change practice should be guided by conceptual models or frameworks” (Graham, Tetroe, & the KT Theories Research Group, 2007, p. 1). A conceptual model is “a set of relatively abstract and general concepts that address the phenomena of central interest to a discipline, the propositions that broadly describe those concepts, and the propositions that state relatively abstract and general relations between two or more of the concepts” (Fawcett, 2005, p. 16). Conceptual models provide a launching pad from which research is started when interests or questions arise concerning general nursing practices. These models give organization and direction as the researcher attempt to view the subject of interest in new light. The concepts of a conceptual model are very abstract words or phrases that condense the thoughts of the conceptual model; these concepts facilitate further reflection and communication about the phenomena of interest. All nurses practice within some conceptual framework that can be identified if she is willing to analyze her thoughts concerning her nursing methods.

Scholarly nursing holds that the conceptual model is the third entity of contemporary nursing knowledge and has existed since the days of Florence Nightingale (Fawcett, 2005). Nightingale’s ideals were not widely-accepted during the early days of nursing due to the inherent lack of autonomy and nursing solidarity; however, she was able to present the first fully-organized
nursing concept during the latter years of her life. Currently, several conceptual models guide best-practice nursing. Each one provides a different view and method of research of the phenomena depending on the purpose and constraint of the problem in question. Each identifies a problem that needs addressing or barriers to change of the ineffective practice, implementation of the change, and evaluating the outcomes of the change.

**The Iowa Model of Evidence-Based Practice (EBP)**

The Iowa model of EBP was developed by Titler, Kleiber, Steelman, et al. in 2001 as a means to incorporate research into the clinical arena. It mirrors the steps in the nursing process and is very popular with nursing researchers for its ease of use compared with other conceptual models. The Iowa model promotes quality care and provides guidance for nurses and other clinicians in making decisions about day-to-day practices that affect patient outcomes (Titler, Kleiber, Steelman, et al., 2001). It identifies practice questions or “triggers” either through identification of a clinical problem or from new knowledge. The triggers are those items identified within the practice arena that raise a question as to the validity of a current practice. By identifying and acknowledging these triggers, EBP projects can be instituted to determine the optimum way to address the issue that will result in quality care for clients. The Iowa Model is used to frame the PICO question as stated above and explain the components as related to this project proposal.

The relationship between research and theory is explicit in that research in and of itself serves no purpose if not used to expand knowledge about some concern. One function of research then, is to test nursing theory as it relates to patient care and expected outcomes. In many instances, nursing problems can be explained by theory easier than by research, and can be used in this project to explain the relationship between education and diabetic patients’ compliance with treatment modalities. King’s theory of goal attainment will also be used to define the framework
for this project, explain the interventions used, and to predict the outcomes of these interventions. Because King’s theory of the nurse-patient bond as a social relationship in which the patient is actively involved in the goal-setting aspects of his care closely parallel the PICO concern to be researched for this project, its relevance is unmistakable in shedding light on the theoretical concepts as well.

**King’s Theory of Goal Attainment**

According to King, human beings are rational, intelligent individuals who possess the ability to make sound choices concerning their care. These social beings have three fundamental needs: The need for information, the need for care that seeks to prevent illness and the need for care when human beings are unable to help themselves (Fawcett, 2005). The nurse-patient relationship takes place within an environment that has two components: The internal environment requires inner strength that enables the nurse to continuously adjust to changes in the external environment which can be formal. The external environment is the clinical setting or home where the interaction takes place and is the patient’s environment. King’s Law of Nurse-Patient Interaction states that the nurse and patient will work together with purpose to make health decisions based on the value system and perceptions of both the nurse and the patient, effective communication, and the bond between the two (King, 1986). If the nurse and patient interact effectively, a transaction will occur. If transactions occur, further health benefits and bridge building will follow. If the highly skilled nurse communicates patient appropriate information at his level of understanding, shared goal setting and goal attainment will occur. The similarities between the Iowa Model of EBP and King’s theory of nurse-patient interaction are evident in that both propose a practice of raising questions as to the validity of a current nursing practice, and a cause and effect relationship between establishing mutual nurse-patient
goals and obtaining optimal health outcomes as a result of eliminating wasteful practices. In the case of the minority patient with diabetes, using the Iowa Model of EBP in conjunction with King’s theory of nurse-patient interactions can demonstrate that individually culturally appropriate education may improve diabetes management as measured by the HbA1c. New current trends can be instituted, thus, eliminating wasteful educational efforts that patients can neither relate to nor internalize for their own self-management practices.

**Review of Literature**

**Search strategy**

The PICO question as stated above was used as a filter to find appropriate articles for this project. Evidenced-based studies and systematic review literature that focused on interventions specifically geared to African-Americans or ethnic minority groups with type 2 diabetes measuring self-care management, cultural beliefs, and glycemic outcomes were included in this review. Electronic databases Cinahl, Cochrane Library, PubMed, ERIC, and MEDLINE were searched for relevant studies fitting the selection criteria for articles published from 2000 through 2011. Internet searches via Google proved to be very helpful in identifying literature reviews of articles by professionals of expert opinion. Key words used were type 2 diabetes, education, African-Americans, HbA1c, and culturally appropriate.

**Validity Assessment**

Articles were classified as research if they contained clearly defined methods and results sections, even if these headings were not used. The research articles were subdivided into qualitative and quantitative research. Articles were classified as quantitative if they presented descriptive or inferential statistics, even if they used a qualitative methodology such as grounded theory.
Review of Evidence

Several articles were researched in order to answer this project’s PICO question. From each article, evidence was apparent that culturally appropriate education improved HbA1c outcomes. Effective diabetes education to the African-American patient is a process that can be facilitated by adopting an approach that incorporates patients’ ideas, feelings, and spiritual concerns. The findings from each of the articles researched are summarized below:

Polzer (2007) studied the spiritual role of the health care provider in self-management of the African-American with diabetes. Grounded theory methodology was used in the parent study followed by qualitative descriptive extended study in a sample size of 10 African-American men and 19 African-American women with type 2 diabetes. Subjects were recruited through flyers and snowball sampling. Five of the participants were ministers that were recruited through identification by community members. The recruitment site was a diabetic clinic and a church. Interviews were conducted at a location of each participant’s choice. Participants were given $10 cash, and ministers were given $20 cash for their time. The findings showed that a spiritual connection with their health care providers was imperative to the nurse-patient relationship (Polzer, 2007).

Data were collected using minimally structured open-ended interviews. The major interview questions were centered on the participant’s perception of his ability to take care of his diabetes and how his spiritual beliefs affected his ability to provide self-care. Additionally, two very pertinent questions were asked: (1) Can a health care provider (HCP) help you manage your diabetes from a spiritual perspective? If so, how? (2) How does your spiritual care affect your self-management? Findings were very positive on several levels that culturally-appropriate education would increase glycemic control. Three groups of thought emerged from the
interviews and the patients were classified into groups by whether he felt God was in the background of health care, in the forefront of health care, and no religious affiliation. It is apparent from the interviews that an added dimension of spirituality governs African-Americans' perception of health care, providers and diabetes management. The views from the participants are summarized on the basis of (1) Nature of relationship with HCP, (2) Conditions for spiritual care by HCPs, (3) Spiritual role of HCP and its effects on self-management. Individuals in the Background Group viewed their HCP as partners in their health care. They desired that their HCP acknowledge this spiritual nature and incorporate similar spirituality into the health relationship; the provider did not have to talk about God in order to provide spiritual care. The Forefront Group viewed God as the Master Healer and health care providers as instruments of God, and that God worked through HCP, and preferred their HCP to specifically talk about God. This also meant that HCPs should be respectful of patients’ decisions to relinquish their self-management to God.

Views from both groups were similar on the importance of following recommendations from the HCP in that they respected the educator’s medical knowledge and ability to provide care. The Forefront Group believed that God gave the HCP the knowledge and ability in the first place and it was very important to listen to them and follow their recommendations. In both groups the main condition for spiritual care was that the provider is spiritual. For some of the participants this meant having a strong belief in God and knowing what to say spiritually to help the patient. For others, it meant providing care that was open and honest; this group felt the HCP could be viewed as spiritual if she treated the patient with compassion and respect.

Of extreme importance in both groups was the relationship between HCP and patient. Both groups felt that HCPs could help them to manage their diabetes from a spiritual perspective by
giving them the usual education on diabetes, self-care management, encouragement and care in a respectful manner using good communication skills. The Foreground Group preferred their HCP to specifically talk about God; they discussed spiritual interventions that would be helpful to them such as prayer by the HCP for their strength, scripture reading, and individualized dietary teachings. These findings do not apply to all African-Americans; some view the role of the HCP as partner and of great importance in the delivery of health care. The most important implications for nursing practice is that in addition to providing the usual best practice diabetic care, performing this care in a compassionate, respectful way may be felt by some African-Americans to be spiritual care, thereby promoting a patient-HCP bond that is an extremely important relationship to this population. Also, the model of the types of spiritual beliefs may help the HCP understand the significance of spiritual care for some African-Americans, and those HCPs that are not comfortable using religious terminology may still provide spiritual care by treating the patient in a caring, respectful, and compassionate way.

In a descriptive correlational study, two conceptual important pillars were analyzed. Low literacy (the lower ability to read, write, speak, and to solve problems) (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993) was viewed as a national problem with implications that reached economic and social levels. African-American populations were the basis of this study. Health literacy has been found to be a stronger predictor of health status than socioeconomic status, age, or ethnic background (Nath, 2007). Non-random sampling of 50 subjects was obtained from a community health center which provided comprehensive health care and dental services in one county and from one church with a 1000-member congregation. Several instruments for measuring health literacy were used: (1) Rapid Estimate of Adult Literacy in Medicine (REALM) questionnaire, (2) Diabetes Knowledge Test, (3) Summary of Diabetes Self-care
Activities Questionnaire, and (4) Diabetes Self-efficacy Scale. The findings suggested that participants who had higher levels of diabetes knowledge and/or self-efficacy tended to have higher levels of general diet self-care. There was a significant negative correlation observed for health literacy and foot care self-care activities. Only self-efficacy was independently associated with foot self-care, and participants who had higher self-efficacy scores tended to have higher foot self-care after accounting for health literacy and diabetes knowledge (McCleary-Jones, 2011).

To enable dietary self-management in African-American diabetic patients, dietary education is paramount. Healthy dietary habits are the problem-child for many southern African-Americans with diabetes. Efforts by health professionals to educate this population on the dangers of continuing this culturally planned and prepared diet have not been successful using conventional education method. In a longitudinal, quasi-experimental case study done in South Carolina to measure the effects of culturally competent dietary education on HbA1c, a group of southern rural African-Americans with diabetes (Anderson-Loftin, Barnett, Sullivan, Bunn, and Tavakoli, 2002) were followed. A convenience sample of 23 high-risk African-American adults recruited from a family practice office in rural South Carolina was used for this study. A local registered dietician who was skilled and knowledgeable in diabetes nutrition provided the dietary education using practical teaching methods. To determine if culturally specific dietary interventions provided better outcomes, dietary teachings using a standard diet was omitted; instead, the participants were taught how to select healthy, low-fat food items recommended by the Food Guide Pyramid using culturally sensitive interventions for fat reduction. Cultural values of rural African-Americans dictated the characteristics of the interventions. For example, ethnic food models were used to teach food planning, and usual food favorites were integrated into
cooking classes for both the patients and their families. The primary modes of learning for southern African-Americans are shared cooking situations, storytelling, role modeling, and by trial and error. Therefore, culturally specific education would incorporate these components in the interventions. Local providers were used to minimize language barriers and stranger anxiety. Preliminary data from this study suggested that interventions specifically developed for southern rural African Americans is effective in improving glycemic levels, costs, and dietary habits. Reductions in A1C levels, fasting blood glucose levels, frequency of acute care visits, lipids and weight were documented (Anderson-Loftin, Barnett, Sullivan, Bunn, & Tavakoli, 2002).

The conclusions from this study were there is a health disparity among African-Americans compared to White Americans related to diabetic health care. There is a higher incidence of diabetic costs, complications, and death. Rural areas of America have few resources from which to combat the overwhelming problem of diabetes management. Although effective dietary education is the principle task for improving diabetic health outcomes, attention to cultural differences has not been a mainstay of teachings. Preliminary results of this study suggests that as a result of culturally appropriate dietary interventions, the A1C levels, fasting glucose levels, and frequent emergency room visits were greatly reduced in addition to improved eating habits including documented decreased lipid reduction and weight loss (Anderson-Loftin et al., 2002).

Health care providers of diabetic education must provide culturally specific teachings across all arenas if health disparities are to be eliminated. Diabetic education must reflect acceptance of cultural diversity and values, and must include these values in all aspects of care if optimal outcome is to be achieved. This study also pointed to the need for a larger, randomized control group study with the goal of establishing a model for health care providers involved in the diabetic care of rural African-Americans.
Several systematic reviews were examined including one comprehensive study that reviewed 17 studies of socially disadvantaged populations conducted by Glazier, Bajcar, Kennie, and Wilson (2006), which sought to identify the effectiveness of researched interventions to improve diabetes care in socially disadvantaged populations. It recognized that when interventions are designed for general populations, disadvantaged groups may not be afforded the same opportunities to benefit from the interventions. The study used randomizing processing in 6 of the studies; the remainder was controlled trials, or before-and-after studies with a coexistent control group. A socially disadvantaged population was defined as non-white ethno-racial groups with low socioeconomic status. Studies that targeted interventions for socially disadvantaged adults with type 1 or type 2 diabetes in industrialized countries that measured self and provider management, home glucose monitoring, diet and exercise involvement, and compliance with scheduled provider appointments were included in the review. Clinical outcomes were defined in terms of fasting blood glucose levels, HbA1C, and blood pressure results. The findings were that eleven of 17 studies that met inclusion criteria had positive results. Interventions that appeared to have the most consistent positive effects included cultural tailoring for the specific population, community educators or familiar individuals leading the intervention, and one-on-one interventions with individualized assessment and reassessment. Interventions using mainly didactic teachings or diabetic knowledge were associated with the largest negative outcomes (Glazier et al., 2006).

This systematic review provided positive correlation between cultural and socially appropriate interventions and favorable outcomes for the socially disadvantaged patient. Short-term group based settings had limited value in improving diabetes knowledge. Key strategies to improve diabetes outcomes in the socially advantaged individual include specifically modifying
the intervention to the needs of the population, incorporating treatment algorithms, focusing on behavior-related tasks, providing feedback, and individualized assessments with high intensity interventions (>10 contact times) delivered over an extended period (>or=6 months). Clinical implications involve the costs and efforts associated with these types of interventions but are justified owing to the large burden of illness borne by this group, their greater need for diabetes health care and documented proof of targeted interventions in reducing negative outcomes of the disease. Ongoing research is imperative to determine the most effective interventions for long term effects, as well as economic study of cost efficiency for delivery of the best-care practices.

In addition to the inclusion of healthy lifestyle changes as imperative to the positive outcome of ethnic American populations, research has surveyed the benefits of other group and family diabetes interventions. In arriving at culturally appropriate interventions, the community must be involved in taking responsibility for all aspects of self-care. In a study conducted by Two Feathers, Kieffer, Palmisano, Anderson, Sinco, Janz, and James (2005), racial and ethnic approaches to community health (REACH) in Detroit as a means to improve diabetes outcomes among African-American and Latino adults was assessed using a qualitative, nonrandomized, 1-group, before and after design which was planned and implemented with guidance from the REACH Detroit steering committee. This design was recommended by the committee due to the history of distrust in the community concerning research. REACH Detroit participants were recruited through 2 hospitals with specialty clinics and 1 community-based health center. Specific measures were guided by problems identified in the community based groups, as well theoretical propositions reinforced by the study. Knowledge deficits were identified through questioning on diet, exercise, and blood sugar control. The Behavioral Risk Factor Surveillance Survey (BRFSS) was used to develop these questions to compare local and national REACH site
results (Two Feathers et al., 2005). Diabetes specific quality of life was measured by the revised Problem Areas in Diabetes scale, A1C, blood pressure, total cholesterol, LDL, triglycerides, height, weight, duration of diabetes, and medications before and after interventions.

Baseline and post-intervention A1C values were compared to A1C values abstracted from the medial charts of a random sample of insured non-REACH Detroit African-American and Latino patients with type 2 diabetes receiving care in the same health care system during the same period of time. The REACH Detroit participants consisted of 111 individuals of which 64% were African Americans and 36% were Latino. The average age was 59 years, with African Americans significantly older than Latino participants. Almost 80% were female. Latino participants had significantly less education and were more likely to be uninsured than the African-American participants. In the baseline comparison of REACH Detroit participants and the health system comparison group, there was significant differences in ethnic and gender composition (P=.006) but not age. Latino representation was smaller (P<.001), and male representation was larger in the comparison group compared to REACH Detroit participants (P=.013). The findings showed that post intervention, a significant number of participants had a better understanding of relationship between diet and blood sugar control. Females and participants between the ages of 18 and 59 improved the most post intervention. There was a significant change in dietary practices after intervention such as increased vegetable consumption, whole bread consumption, decrease soda consumption, and pouring fat off meats after cooking of days spent monitoring blood sugar. There was an improvement in all participants related to the number of days spent monitoring blood sugar. There was no significant change in the consumption of fried and sweet foods or level of physical activity.
REACH participants experienced a significant improvement in A1C, moving from the 7 or higher classification to 7 or lower (Two Feathers et al., 2005). The changes for African-Americans and Latinos were measured separately due to the less than desirable number of Latino adults in the comparison group. Nevertheless, the clinical improvement for both groups was impressive. Blood pressure, weight, and cholesterol did not change considerably post intervention.

Conclusions of these findings suggest that a culturally-appropriate, community-based diabetes healthy lifestyle intervention delivered by community residents over 5 sessions can significantly improve glycemic control and reduce risk factors associated with diabetes complications. The REACH Detroit findings were unique in that interventions were provided by trained community residents rather than health professionals. Continued research development to determine specific effective interventions is needed to improve outcomes for African-Americans and other populations at high risk for diabetes and associated complications.

Additional studies have shown that interventions designed to improve self-efficacy can produce improvements in self-management of chronic diseases and health outcomes (Farrell et al., 2004; Scherer & Schmieder, 1997; and Sarkar, Fisher, & Schillinger, 2006). The role of self-efficacy or an individual’s confidence in their ability to perform health behaviors is the mainstay for any successful self-management program.

The conclusions and recommendations from the study revealed that relationship between diabetes knowledge and self-efficacy may play a very important role in African-Americans’ participation in self-management. Interventions aimed at increasing knowledge and self-efficacy would be beneficial in the overall participation and management of diabetes. Older individuals who have lived with diabetes longer are more successful in following diabetes self-care
guidelines which explains greater self-efficacy in diabetes management. Higher health literacy levels were observed in these individuals that received diabetic teachings, but no actual difference in diabetes knowledge level was observed. Only 48% of the population knew their A1C level, and among individuals with health insurance the A1C was lower. This particular finding points to the health disparity in health care versus health literacy. Ongoing diabetes education should be provided to nurture compliance with self-care regimens and increase diabetic knowledge. The Institute of Medicine (IOM) recommends that programs designed to promote health literacy, health education, and health promotion should be developed with the involvement from the people who will use them, and that these efforts must be sensitive to cultural and language preferences (Nelson-Bohlman et al., 2004). Health care providers should be sensitive to the effect of health literacy on the ability of the individual to receive and internalize diabetes teachings and have the skills to tailor education to the specific needs of the individual.

**Critical Appraisal of Evidence**

Minority patients have an increased incidence of type 2 diabetes, severe complications, debilitating illness, and even death as a result of this raging disease. It cannot be emphasized enough that diabetic education should be based on assessment of individual need, rather than relying on the provision of one-size-fit-all interventions that are neither understood nor well-received by some members of the African-American population. Recognizing the implications for increasing costs, mortality and morbidity for this population, multiple studies have been conducted to determine best-care protocols for self-care management and measurement of outcomes. The changing philosophy of health care is depicted by the vast array of research articles available on the subject of diabetes. Evidence must be of superior quality to be worthy of
use in providing nursing interventions. The Department of Health (1993) defined research as: “Rigorous and systematic inquiry conducted on a scale and using methods commensurate with the issues investigated and designed to lead to generalizable contributions to knowledge.” Hence, the systematic methodology form of research makes it superior to other researched information. Decisions made by all individuals concerning patient health care should be based on a systematic appraisal of the best evidence available (Grey, 1997). Evidence to evaluate the validity of providing individualized culturally appropriate education versus routine education as measured by the HbA1c was appraised for use as standards of care for health disparaged African-American diabetic patients. Strengths and weaknesses, level of evidence, quantity and quality of evidence for each article in support of answering the clinical question are summarized as: (2) Level 6 qualitative descriptive studies (Polzer, 2006) (Two Feathers et al., 2005), (1) Level 4 descriptive correlational study (McCleary-Jones, 2011), (1) Level 3 longitudinal, quasi-experimental study (Anderson-Loftin, Barnett, Sullivan, Bunn, & Tavakoll, 2002), and (1) Level 1 systematic review (Glazier, Bajcar, Kennie, & Wilson, 2006) that consistently supported the use of culturally-appropriate diabetes education for African-American individuals compared to routine education (see Appendix A). Evidence was consistently validated by decreased HbA1c levels. In all studies weaknesses were glaringly obvious in small sample sizes, bias in recruitment practices, and disproportionate representation of genders. In one study, re-selection of five participants for extended study with strategic placement of these five in groups to saturate typology classes rendered the study particularly limited in validity. The cash stipends given in two studies may have tainted the response of some participants as well as biased the pool of available participants for the study. Since qualitative research designs are geared toward assessing human response in various arenas, this design is effective as method for research
development to determine the appropriate educational interventions to achieve the desired response in culturally diverse populations. Recommendations from all studies are sound and positive for the development of culturally appropriate programs designed to increase diabetes knowledge levels, health literacy, and health education, as summarized in Table 1:

**Table 1**

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<th>Area of Concern</th>
<th>Recommendations for NP</th>
<th>Grade</th>
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| Spirituality                    | 1). Use positive language concerning illness and reminding them that God says they are already healed.  
2). Include God in treatment plan; i.e., “this is what the test results are, but God is the master planner”. | B     |
| Health Literacy and Self-Efficacy | 1). Account for literacy when planning/setting goals.  
2). Implement culturally-specific strategies to enhance diabetes knowledge and self-efficacy.  
3). Develop programs and set goals with input from the very people who will use them (African-Americans). | B     |
| Dietary Education               | 1). Try to engage local dieticians/educators who patients feel comfortable with.  
2). Instead of teaching using standard ADA guidelines, teach patients to make healthy low-fat choices/meals using Food Guide Pyramid.  
3). Use culturally relevant strategies for food fat reduction based on individualized, mutually set goals.  
4). Ensure strong nurse-patient bond by following-up via telephone and home visits to identify problems and assist with meal plans as needed. | B     |
| Cultural Sensitivity            | 1). Develop community-based, culturally appropriate interventions that include lifestyle education, social support, and behavior changes approaches. | B     |

Interventions should be specifically geared toward meeting the needs of the patient on an individualized basis by specially-trained health care providers in communications skills directed to enhancing the patient-provider bond (see appendix). Further research is recommended to identify culturally specific interventions to enhance health literacy and self-efficacy among African-Americans with diabetes. Based on the evidence found that support these
recommendations, I summarily give a Grade B in recognition of the understanding and promotion of specialized interventions for the best possible outcomes for this population.

**Needs Assessment**

This pilot project will be conducted through the general practice of Dr. XXXX, a local physician in Montgomery, Al. The physician’s goal is to provide efficient, professional, and appropriate care to all his clients. Currently, the doctor and staff provide diabetes education based on traditional interventions as outlined by the American Diabetes Association (ADA); he estimates that 35% of his practice consists of diabetics with approximately 28% being of African-American ethnicity. The ADA recommends an HbA1c goal of <7% for non-pregnant adults measured every 3 months. This lowered level has been shown to reduce microvascular and neuropathic complications of diabetes. Dr. XXXX reports that the majority of his patients have HbA1c levels in excess of 9.0-10% with the average fasting FSBS for African-American patients ranging from 180-220; these patients already have adverse side effects associated with disease such as kidney disease, retinopathy, heart disease, and neuropathy. The disproportionate ratio of African-American to White population with diabetes in this setting points to the need for culturally-appropriate interventions to achieve effective patient self-care and optimal outcomes. EBP literature has shown that individuals who receive appropriately-developed diabetes education are more likely to incorporate positive learned behaviors into their daily lifestyles. Decisions to engage in healthy lifestyle changes can be made only after being presented with adequate, culturally-relevant information that points to the expected positive outcomes of effective diabetes self-management.
Implementation Plans

An in-office conference with primary stakeholder, Dr. XXXX and secondary stakeholders (nursing and office staff) was held in November, 2011; the opportunities for success of the project based on evidence-based research were outlined:

- Improved HgA1c levels
- Improved FSBS results

Identified barriers to the success of the project were minimal, but included staff concern with interference with daily routines, confidential work area, and patient concerns with confidentially. Dr. XXXX suggested that when in-office visits with the patients seemed difficult to achieve, home visits could be made where the patients might feel more comfortable and ease of communication might be better facilitated; this plan would also allow normal office routine on busy days. The overall staff reaction to the proposed project was very encouraging. The only foreseeable budgetary needs for the project were discussed; paper, ink, and the $100 cost for Wal-Mart gift cards will be paid by the Advanced Practice Nurse (APN) (see Appendix B for budget). Permission to conduct the pilot project was then granted by Dr. XXXX.

Culturally-appropriate educational interventions is the cornerstone for this pilot project; therefore the Advanced Practice Nurse will educate 5-10 African-American clients every two weeks in 45 min. to 1 hour sessions each in the medical office or patient’s home over a 6-week period. The patient’s spiritual beliefs and perceptions of the role spirituality plays in health self-care management including feelings on relationships with current health care providers will be obtained. Each participant’s health literacy status will be assessed related to patient’s knowledge of correlation between elevated HbA1c and advancing disease. The patient will be allowed to express his or her perceptions of the cause of treatment non-compliance. Participants will be
taught healthy diet selections using ethnic food models, favorite foods, and role modeling. Participants will be taught lifestyle changes using culturally-appropriate interventions (see Appendix C for timeline).

**Small Test of Change**

The small test of change for this project will be conducted through the medical practice of Dr. XXXX. The metabolic measure HbA1c is the gold standard test used for determining success for diabetes programs. This test reflects the blood glucose over the preceding 3 months and determines how well the blood glucose is controlled. My key challenge is identification of culturally-appropriate educational interventions to achieve positive diabetes outcomes in African-Americans. Because of the time constraints of this project, a 3-month waiting period for the HbA1c results for each of the participants is not feasible. Therefore, the fasting FSBS will be used to measure effectiveness of individualized, ethnic-appropriate education. Each participant will be instructed to perform self-fasting FSBS daily and enter results into a log for 6 weeks which will be reviewed by the advanced practice nurse each visit. The results will be analyzed at the end of the 6-week period pre and post interventions using SPSS analysis. Results will be reported to Dr. XXXX and staff for review.

**Recruitment**

All participants will be recruited from the medical practice of Dr. XXXX. Flyers and information letters will be placed in the office waiting room beginning in December, 2011 explaining that the project is to begin in January, 2012. The letter will explain that the potential benefits to participants may be increased knowledge of diabetes, improved ability for self-management. Final participant selection of 5-10 clients will be made from letter responses,
patient chart reviews, and staff suggestions to identify appropriate clients based on 4 key criteria:

- African-American ethnicity.
- Over the age of 19.
- Type 2 diabetics on either oral medications, insulin, or both who receive routine diabetes education.
- HbA1c performed within 6 months prior to project.

IRB approval application will be submitted for project start. A formal invitation in addition to the information letters will be given to each potential participant with the option of signing on the spot or reading and returning documents in one week. Signed Information Letters and Informed Consent Forms are mandatory for inclusion in the project. Patients will be assured that the decision to participate or not will in no way jeopardize future medical care with Dr. XXXX. They will also be assured that information obtained during the span of the project will remain confidential. A $10 Wal-Mart gift card will be offered to clients for participating in project.

**Instruments**

After selection of 5-10 clients in January, 2012, baseline health information will be obtained using the Stanford Patient Education Research Center Chronic Questionnaire, a Likert scale that effectively measures health related quality-of-life longitudinally. It describes the impacts of disease, treatment, or normal aging upon the patient. Reliability and validity studies on this instrument find it is useful in measuring change in intervention studies. The program instruments are reliable and valid in African American, Hispanic, and Native American diverse populations and have been used extensively in the US, Canada, and internationally in England, Australia, Africa, and South America. The instrument/reliability General Health Rating is (R=.92) for perceived change in health status occurrence (Farrell, 2008).
The **Diabetes Self-Efficacy Measurement Tool** will be used for pre-education and post-education survey of clients. This 8-item Likert scale questionnaire measures the client’s confidence level in performing certain activities at a given point in time. This tool makes extensive use of participation helping to provide ownership of life skills in specific areas. It was tested on 186 participants with diabetes and had an Internal Consistency Reliability Score of .828 (Stanford, 2007). It will be used at both Week 1 and at the end of the 3-month project.

**Evaluation Plans**

This project has a proposed time line of 8 weeks using educational interventions sensitive to African-American needs provided every 2 weeks. Project effectiveness will be measured using the 8-item post education Diabetes Self-Efficacy measurement Tool at the last visit; this questionnaire will determine effectiveness of culturally-appropriate interventions as measured by the client’s self-report of confidence in providing care as taught by the APN. The scale for this tool ranges from 0 (not at all confident) to 10 (confident). Even though the HbA1c is the test of choice for evaluating the success of diabetes regimens, due to the time constraints for this pilot study, FSBS results will be reviewed at two week intervals and at the last APN visit using patient-in home logs to validate effectiveness of teachings. Post-intervention data will be analyzed using SPSS. Observations of significantly decreased FSBS results will reflect effectiveness of dietary, lifestyle, and health literacy interventions. Final results will be reviewed with primary stakeholder, Dr. XXXX with feedback elicited.
Discussion

From this ambitious attempt to identify relevant and culturally-appropriate educational interventions that can be utilized by advanced practice nurses to improve outcomes for African-American diabetic patients, small test-of-change results support EBP literature findings that African-Americans respond positively to individualized, ethnic educational and group settings if religious beliefs are incorporated in the teachings. IRB approval was submitted for this project but was not required. EBP findings were discussed with a local physician who was very excited about the project and granted permission to conduct it through his practice; flyers were placed in the waiting areas in November, 2011 to initiate interest. Medical charts were reviewed for subjects meeting the 4-point enrollment criteria for inclusion in the project: Over the age of 19; must have DM Type 2; on some form of hypoglycemic medication; and had HgA1c within 6 months of start of project. The potential subjects were validated by Dr. XXXX as being good candidates for the project. The actual timeline was implemented with approximately 1 week delay in 3 of the participants starting the first week due to various personal reasons. Home visits were initiated the week of 01/16/12 when consents were signed and baseline health information was gathered using the Stanford Chronic Disease Questionnaire. As anticipated, they were very thankful for the Walmart gift card, but seemed to enjoy the visits even more as the weeks went by. All participants (n=8) showed high levels of motivation in that they were very receptive to Advanced Practice Nurse (APN) visits and eager for upcoming visits. The Stanford Diabetes Self-Efficacy Measurement Tool was administered pre-educational interventions to determine each participant’s perception of his or her ability to manage his or her diabetes. Because of the time-constraints associated with measuring blood glucose using the preferred HgA1c blood test, fasting FSBS was used instead to measure program effectiveness. Each participant received 4
educational sessions spanning a total of 6 weeks as proposed. Dietary management using evidence-based practice carbohydrate counting specifically geared to African-American usual food choices, in-home exercises, and routine FSBS logging were taught; all participants performed self-fasting FSBS daily. Religious beliefs were incorporated into the teachings when it was determined that their faith played a large part in their daily lifestyles as was the case in 7 of the 8 subjects-- the remaining subject had no particular religious affiliation. Freedom of expression concerning all areas of the disease processes including reasons for non-compliance was encouraged by the APN. The participants were very receptive to the visits and teachings, often times wanting the visits to go on longer than what was scheduled. It was also noted that the participants were eager to share teachings with other community members, and wanted to invite them to the teaching sessions.

**Results**

- This project was an evaluation study using non-probability sampling because the participants were obtained through convenience and availability. The mean was used as the measure of central tendency, but it was found to be sensitive to the extreme total population values. The mean pre-intervention FSBS for (n=8) was 140 and the mean post-intervention FSBS was 114.75.

- The paired sample test was used for the T-Test measurement because it compares changes or differences that take place between two points in time within the same group; in this project FSBS results before and after education was measured.

- A one-tailed test of statistical significance was used because it is directional and it was predicted that based on EBP literature, the FSBS results should be lower after culturally
appropriate education, and therefore, the critical region of the distribution would be placed at the predicted end, or tail, of the distribution where it supports the EBP findings.

- Based on a 95% confidence interval, in all FSBS pairs except for pair 6, the critical value was less than .05, rejecting the null hypothesis in favor of continuing the culturally-appropriate interventions. In pair 6 (Question 5), the measurement tool asked “How confident do you feel that you can do something to prevent your blood sugar level from dropping when you exercise”? The resulting value was .155, but this may have been attributable to the fact that the participants were unsure how to answer the question because they did not routinely exercise (see Appendix D for FSBS Results Graph and Paired Samples Test Results).

**Recommendations for Practice Change**

EBP data suggest that diabetes educational interventions developed specifically for African-Americans are more likely to result in positive lifestyle changes and the ability to sustain those changes throughout the lifespan of the individual. Future studies should explore how positive outcomes can be enhanced and increased, then relayed to the African-American community in a manner conducive to this population’s learning styles. Intense research efforts should be directed towards identifying and categorizing specific interventions that have been proven effective as indicated by decreased HgA1c results with inclusion of input from this population as to what is perceived as effective or not. Involving advanced practice nurses who are dedicated to understanding the dynamics of the African-American health plight in the United States, and respecting and incorporating the cultural norms into established treatment protocols can help in promoting the adoption of new evidence-based research findings into practice.
Conclusions

This project has been very rewarding both in significance of support of previous findings related to successful diabetes teachings to African-Americans, and observing the successful implementation of life-changing interventions by this pilot group. All participants were elated with the newfound diabetic diet knowledge (carb counting), and were able to recount the connection between correct dietary management and final lowered FSBS results. All participants were able to cite correlation between uncontrolled diabetes and increased complications and were very grateful for culturally-specific diabetes education.

Education is of the utmost importance in reducing the morbidity and mortality rates of Diabetes. Findings from this project support recommendations from previous studies which are sound and positive for the development of culturally appropriate programs designed to increase diabetes knowledge for American-Americans.
References


http://aumnicat.aum.edu:2053/ehost/pdfviewer/pdfviewer?vid=6&hid=104&sid=2e9909c2-6fef-4478-bbc7-fc1501069224%40sessionmgr113


### Evidence Grid: Grading criteria

<table>
<thead>
<tr>
<th>Article citation in APA format (10 points)</th>
<th>Purpose of study/research questions (15 points)</th>
<th>Design type and methods (sampling method/sample size, description of interventions (if any), and outcomes measured (30 points))</th>
<th>Major findings/findings relevant to project (20 points)</th>
<th>Critique of validity, bias and significance (25 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anderson-Loftin, W., Barnett, S., Sullivan, P., Bunn, P., &amp; Tavakoli, A. (2002). Culturally competent dietary education for southern rural African-Americans with diabetes. Diabetes Educator, 28(2), 245-257.</strong></td>
<td>This purpose of this article is to describe a culturally competent, dietary self-management intervention designed to improve physiological outcomes, diabetes self-management, and costs of care for high-risk African Americans with type 2 diabetes.</td>
<td>Longitudinal, quasi-experimental design study using a 1-group pretest-posttest design conducted from February 1999 to November 1999. Convenience sample of 23 from a family practice in rural South Carolina. Only high-risk individuals with indicators modifiable by diet were included in the study (at least 1 of the following indicators): A1C &gt;8%, cholesterol &gt;200 mg/dl, triglycerides &gt;200 mg/dl, LDL-cholesterol &gt;100 mg/dl, weight &gt;2.5 kg/m2, or summary score on the Food Habits Questionnaire (FHQ) &gt;2.5</td>
<td>1)Significant improvement in fat-related dietary habits (N16, Positive Difference 1, Ties 0, Exact 2-Tailed P .005). Significant decrease in A1C and fasting blood glucose. Total cholesterol reduced by 17%. Triglycerides were decreased by 25%. Mean weight loss of 5%. 2)Significant decrease in costs of care as measured by the number of acute ER visits, MD visits, or health clinic 5 months post-intervention.</td>
<td>Weaknesses: 1)Study bias r/t non-randomization of sample with small sample size; under-representation of male gender. 2)Method of recruitment limits validity. Caution must be exercised in interpreting results.</td>
</tr>
<tr>
<td><strong>LOE III</strong></td>
<td></td>
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</table>
American culture and consisted of 3 components: (1) low-fat dietary education, (2) peer/professional discussion groups, and (3) follow-up. A local RN skilled in diabetic nutrition provided the dietary education using experiential teaching methods. One certified diabetes nurse case manager led the discussion group, and provided follow-up home visits and telephone calls to identify complications or problems. Key findings were relayed to a physician liaison. In addition to the indicators listed above, SBP and DBP were also measured.

| McCleary-Jones, V. (2011). Health Literacy and Its Association with Diabetes Knowledge, Self-Efficacy and Disease Self-Management among African Americans with Diabetes Mellitus. *ABNF Journal*, 22(2), 25-32. | Purpose of this study was to examine health literacy and its association with diabetes knowledge, perceived self-efficacy and disease self-management among African-Americans with diabetes. | Descriptive correlation study, non-randomized sample with theoretical framework and sample size of 50 subjects (12 males, 38 females). The average participant was female 76%, 58.6 years old, had at least some college education (66%), | 1) Study revealed that diabetes education significantly impacted health literacy. Self-efficacy and diabetes knowledge can be used as predictors of participation in diabetes self-care management. 2) Those individuals who had health Weaknesses. 1) Use of a small sample which limits validity of data. Study participants were predominantly female which disproportionately represents both genders. 2) Participants recruited from one community health center and one |
| LOE IV | had health insurance (68%), and no difficulty paying for health care (64%). (1) Rapid Estimate of Adult Literacy in Medicine (REALM) questionnaire, (2) Diabetes Knowledge Test, (3) Summary of Diabetes Self-care Activities Questionnaire, and (4) Diabetes Self-efficacy Scale used for measuring literacy. Outcomes measured: Health literacy, education level, diabetes knowledge, HbA1c insurance had lower A1C levels compared to those who did not have insurance. This finding highlighted issues related to access to health care. | church congregation of approximately 1,000 members. Data was collected at a single point in time. Strengths: Showed the need for culturally-appropriate diabetes education and interventions and the need for the people who will use these interventions to participate in the development of these interventions. |
| LOE VI | The purpose of this study was to examine how, if, and under what circumstances, African Americans with diabetes would like health care providers (HCPs) to address their spirituality during health care encounters. Grounded theory non-randomized design in the parent study and qualitative non-randomized research design in extended study. Sample size of 10 African-American men and 19 African-American women with age range of 42-73, and range of education from grade 5 to post-bachelor’s degree. Ministers were recruited through key informants in | Weaknesses: 1) Individuals recruited from single diabetic clinic and 1 church and through snowball sampling. 2) $10 cash stipends were given to the participants and $20 cash to the ministers for their time may have tainted availability of appropriate subjects for study. |

the community in the parent study. For the extended study, five participants from parent study were re-interviewed and strategically placed to represent each of the typologies identified in the parent study. $10 cash stipends were given to the participants and $20 cash to the ministers for their time.


**LOE VI**

| The purpose of this study was to determine the effects of community-based, culturally tailored diabetes lifestyle intervention on risk factors for diabetes complications among African-Americans and Latinos with type 2 diabetes. | This study was a qualitative, non-randomized, 1-group, before and after design which was planned and implemented with guidance from the REACH Detroit steering committee. This design was recommended by the committee due to the history of distrust in the community concerning research. REACH Detroit participants were recruited through 2 hospitals with specialty clinics and 1 community-based health center. Baseline and post- | 1) Post intervention, a significant number of participants had a better understanding of relationship between diet and blood sugar control. Females and participants between the ages of 18 and 59 improved the most post intervention. 2) There was an improvement in all participants related to the number 3) There was a significant change in dietary practices after intervention such as increased vegetable consumption, whole brad consumption, decrease soda consumption, and |

**Weaknesses:** 1) Non-experimental community-based study with non-randomized sample. Sample size not reported. 2) Only one behavioral variable (frequency of glucose monitoring) predicted the improved HbA1c in the multi-variate regression analysis. 3) Results may have been tainted by other factors not measured. Many of the participants had few resources including limited literacy and limited healthy food supply.

**Strengths:** improved
| Glazier, R.H., Bajcar, J., Kennie, N.R., Wilson, K. (2006). A systematic review of interventions to improve diabetes care in socially disadvantaged populations | The purpose of this review was to identify and synthesize evidence about the effectiveness of patient, provider, and health system interventions. Review of 17 studies of socially disadvantaged populations using randomizing processing in 6 of the studies; the remainder were controlled. | Key strategies to improve diabetes outcomes in the socially advantaged individual include specifically modifying the intervention to the needs of the individual. Weaknesses: Short-term group based settings had limited value in improving diabetes knowledge. Strengths: documented evidence. |
diabetes care among socially disadvantaged populations. Diabetes Care, 29(7), 1675-1688. LOE: I

| Interventions to improve diabetes care among socially disadvantaged populations. | Trials, or before-and-after studies with a coexistent control group. A socially disadvantaged population was defined as non-white ethno-racial groups with low socioeconomic status. Studies that targeted interventions for socially disadvantaged adults with type 1 or type 2 diabetes in industrialized countries that measured self and provider management, home glucose monitoring, diet and exercise involvement, and compliance with scheduled provider appointments were included in the review. Clinical outcomes were defined in terms of fasting blood glucose levels, AC, and blood pressure results of the population, individualized assessments with high intensity interventions (≥10 contact times) delivered over a period of ≥ months. | Proof of targeted interventions in reducing negative outcomes of the disease. |
## Appendix B

### Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Budget</th>
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</thead>
<tbody>
<tr>
<td>Paper</td>
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<tr>
<td>Ink</td>
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</tr>
<tr>
<td>Gift Cards</td>
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<tr>
<td>Gas</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$285.00</strong></td>
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</table>
Appendix C

Timeline

November 14-18, 2011

- Office consultation with Dr. XXXX (primary stakeholder), and nurse/office staff (secondary stakeholder).

December 19-23, 2011

- Place flyers and Informational Letters with APN contact number in medical practice waiting room.

January 2-6, 2012

- Review medical charts/responses for 5-10 African-American type 2 diabetic patients meeting all pilot project inclusion criteria.
- Call patients regarding participation in project small test of change.
- Get informed consents signed either at medical office or at patient’s home.

January 9-13, 2012

- Visit 1—Administer pre-education Diabetes Self-Efficacy Measurement Survey. Obtain baseline FSBS; reinforce glucometer use and keeping log as needed. Ascertaining patient’s spiritual beliefs and perceptions of role that spirituality plays in health self-care management including feelings on relationships with current health care providers.
January 23-27, 2012

Visit 2-- Explore health literacy related to correlation between elevated HbA1c and advancing disease. Allow patient to express his/her perceptions related to cause of treatment non-compliance. Teach healthy diet selections using ethnic food models, favorite foods, and role modeling.

February 6-10, 2012

- Visit 3 – Teach lifestyle changes related to exercise using culturally-appropriate interventions such as walking and increasing distance in increments, exercises that can be done in the home while watching TV or listening to the radio, and importance of maintaining exercise regimen at least 5 times per week.

February 20-24, 2012

- Visit 4 – Observe and record 6-weeks fasting FSBS log results; administer post-educational Diabetes Self-Efficacy Measurement Survey.

- Visit 4 – Observe and record 6-weeks fasting FSBS log results; administer post-educational Diabetes Self-Efficacy Measurement Survey.

- Share project findings with stakeholders.
Appendix D

Graph 1

FSBS Blood Sugar Results

Table 2

Paired Samples Test (Differences)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Sig. 1Tailed</th>
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<tbody>
<tr>
<td>Pre/Post FSBS</td>
<td>25.250</td>
<td>39.405</td>
<td>13.932</td>
<td>.0</td>
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<tr>
<td>PreQ1 – PostQ1</td>
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<td>1.768</td>
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<td>.0</td>
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<td>PreQ2 – PostQ2</td>
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<td>PreQ4 – PostQ4</td>
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<td>.0</td>
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<tr>
<td>PreQ5 – PostQ5</td>
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<tr>
<td>PreQ6 – PostQ6</td>
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<tr>
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<td>.327</td>
<td>.0</td>
</tr>
<tr>
<td>PreQ8 – PostQ8</td>
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<td>1.035</td>
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</table>